Editorials

America's Ways of Doing Things

WE IN THIS NATION have the best health care and probably the highest standard of living in the world. Even what we call poverty bears no resemblance to the poverty to be found in many other places. This standard of living and this quality and availability of care have been achieved by changing many of the earlier American ways of doing things. In a word, as things became more complicated it was found that the earlier laissez faire ways of doing things did not work well enough. In fact the laissez faire system finally broke down and this resulted in 1929 in the Great Depression. At that time the people turned to the federal government and demanded that it do something. This change in emphasis was accomplished by the national election in 1932 which was followed by the federal interventions of the Roosevelt era and the growth of the role of the federal government in American society which continues even under the present administration. In retrospect this was a dramatic shift away from what had been the traditional American way of doing things.

The extraordinary progress in medical science and technology since World War II soon began to cause things to become complicated in health care, as they had previously in society generally, and again the people turned to the federal government. What is now often called the health care industry has come to be the most regulated industry in the nation. Again this occurred because the problems had become too complex and the traditional laissez faire approach to health care did not deal adequately with them. And this too was a dramatic shift away from what was the case in the earlier less scientific and less technological era of patient care in this nation.

This dramatic shift from private responsibility to public responsibility for solving complex problems may not at first have been fully recognized for what it is. In any event the results are beginning to become more obvious. The tools that government has to solve problems are laws, regulations that have the force of law, and money which it raises through taxes, by borrowing or by simply printing it. These tools have been used in the fullest measure for almost half a century and now the extent of their use has in turn become a major part of the problem. And as power has become more centralized in government, the people have formed themselves into hundreds if not thousands of special-interest groups, every one of which, by definition, must be a minority. The pressure exerted by these often opposing groups and the complexities of often conflicting laws and regulations can actually paralyze government decision-making and thwart effective action in the majority or public interest. In essence the evidence is accumulating that many of the problems engendered by our standard of living and the quality and availability of our health care will never be solved by reliance on government. It may be that the time is coming for another dramatic shift in America's ways of doing things. Neither the traditional laissez faire approach nor reliance on centralized government seems to work well enough.

Perhaps it is time to return at least some of the problems to the people for solution by negotiation and agreement among those most directly involved. This could be done in communities or, where appropriate, in regions or even nationally. This will result in some unevenness in the solutions, but in health care at least the solutions offered by government have led to unevenness and certainly to something less than equality. In a sense this could be a return to the earlier American concept of the town meetings where decisions were made and problems dealt with by consensus and agreement among those most directly involved and in terms of the resources available to the community from whatever source. It is interesting to note that health care now pervades almost every element of American society and has become an integral part of our standard of living. It has been found that neither laissez faire nor the regulatory approach—nor even government money—has been able to cope adequately with its problems or develop truly lasting or satisfying solutions. It would seem that health care, pervasive as it is throughout our society, could begin to lead the way for what must sooner or later be another dramatic shift in the American way of doing things. Physicians are a minority in health care, and the health care industry is a minority component of the American standard of living, but we are a relatively organized minority with a broad base in American life, and we are among the first to recognize that while some things are best left to laissez faire, and that some things in a complex interdependent society are best regulated by government, there are yet some things that are showing themselves to be beyond the ability of either approach to deal with successfully. Health care, in many of its aspects, is surely one of these. Perhaps it is time for the ball to come back into the people's court—in health care at least. MSMW

Noninvasive Assessment of Carotid Artery Disease

DIAGNOSTIC METHODS and therapeutic alternatives for cerebrovascular disease are rapidly evolving. In the past decade we have witnessed a remarkable development of sophisticated noninvasive diagnostic techniques that not only have improved our ability to unobtrusively detect carotid artery disease, but also have permitted improved understanding of the natural history and efficacy of treating carotid atherosclerosis. Improvements in inva-

sive diagnostic radiology have led to rapid proliferation of digital subtraction techniques that permit safer and less painful visualization of the major cerebral vessels with intravenous injection of contrast material. Indeed, the widespread application of digital subtraction angiography has led many physicians to question the relative role of noninvasive diagnostic techniques in the evaluation of patients with symptomatic or asymptomatic cerebrovascular disease. Finally, a variety of therapeutic alternatives have recently been developed, including newer antiplatelet agents, improvements in carotid surgical monitoring and operative techniques and skillful application of extracranial-intracranial bypass procedures to revascularize cerebral territories previously inaccessible in the presence of thrombosis of the extracranial internal carotid artery. With these many advances, it is no wonder physicians are confronted with a bewildering number of diagnostic and therapeutic alternatives in a patient who may have cerebrovascular disease. Yet, logic in the management of such patients must prevail to satisfy the demands of cost effectiveness in the allocation of these available resources.

It is, thus, timely that Bandyk and Thiele review the principles and applications of the current noninvasive, semi-invasive and invasive diagnostic techniques of evaluating carotid artery occlusive disease. They emphasize an integrated algorithmic approach to the most appropriate diagnostic modality based upon a patient's symptoms and extent of detectable carotid artery disease. The authors have presented an up-to-date, state-of-the-art approach that should be studied seriously by all physicians involved in the diagnosis or treatment of patients with carotid atherosclerosis. I am in general agreement with their recommendations. I would like to emphasize some points of agreement and discuss some areas of controversy. And then I would like to comment on the most important area of the relative roles of noninvasive diagnostic techniques versus intravenous digital subtraction angiography and to emphasize the changing role of noninvasive methods in symptomatic versus asymptomatic patients.

Bandyk and Thiele point out the importance of differentiating normal from abnormal carotid arteries. The ability to only noninvasively detect advanced disease is no longer an acceptable goal for a noninvasive vascular laboratory. Patients with cerebral symptoms due to extracranial carotid atherosclerosis may have emboli from lesions that do not reduce pressure or flow and, thus, may not be detected by indirect screening techniques such as periorbital Doppler ultrasound or ocular plethysmography. Nevertheless, such lesions can usually be detected using more sensitive direct carotid screening techniques, including continuous wave or pulse Doppler ultrasound with spectrum analysis or high-resolution B-mode imaging devices. Although physicians previously believed that all symptomatic patients deserved angiography, the current option of doing intravenous digital subtraction angiography has created a new role for a noninvasive laboratory in screening patients for extracranial carotid artery lesions of sufficient extent to be detected by the newer radiographic methods. More will be said about this important subject later.

A second goal for a noninvasive laboratory is the definition of the integrity of the cerebral collateral circulation, particularly via the circle of Willis. Indirect noninvasive techniques provide physiologic information during brief periods of carotid compression that may be of predictive value in distinguishing patients whose carotid lesions may be compensated for by collateral circulation versus those persons who are dependent on flow through the diseased vessel. Such physiologic information may not be gleaned from the morphologic images of an arteriogram. Knowledge of cerebral collateral circulation is of particular importance to a surgeon in planning for a possible indwelling shunt during carotid endarterectomy. The integrity of the circle of Willis may also be of importance in predicting the natural history of patients with asymptomatic carotid disease and the possible need for prophylactic carotid endarterectomy. Bandyk and Thiele appropriately emphasize the value of this information in managing asymptomatic patients or patients who have atypical, nonlateralizing symptoms.

Despite the attractiveness of intravenous digital subtraction angiography, the limitations of this technique and, indeed, the limitations of conventional intraarterial contrast arteriography have only recently been emphasized by several investigators. The group at the University of Washington has been instrumental in carefully evaluating the intraobserver and interobserver variability of interpretation of carotid arteriograms. The surprising variability of diagnostic interpretation is aggravated by the reduced image resolution of intravenous digital subtraction angiography.

In addition, the problems of the nonselective nature of the study, the limitations of views, motion artifacts and the need for repeat intraarterial study in a finite percent of cases all are contributing to a more tempered enthusiasm for this diagnostic study. Nevertheless, there are clear-cut roles for intravenous arteriography and the authors provide a sound approach to the use of this new imaging modality based on the results of noninvasive studies.

There are a few areas in which I would take minor issue with their statements. They suggest that continuous wave Doppler ultrasound, while simple and less expensive, does not provide the diagnostic accuracy of combined B-mode Doppler ultrasound (duplex scanning). While audible interpretation of continuous wave Doppler signals is sensitive only to more advanced disease, the use of spectrum analysis with continuous wave Doppler interrogation of carotid arteries has provided a sensitivity and specificity that approach that reported with duplex scanning.[1,2] Although duplex scanning is recommended as being the best diagnostic device for most vascular laboratories, the expense, complexity and technical challenges of this instrument limit its widespread application. I feel that many vascular laboratories are more easily applying continuous wave Doppler ultrasound with real-time spectrum analysis with results that are similar to that of duplex scanning. Nevertheless,

in the final analysis, high-resolution B-mode imaging coupled with Doppler ultrasound remains the noninvasive diagnostic standard for evaluating extracranial carotid artery atherosclerosis.

Bandyk and Thiele suggest that the oculopneumoplethysmograph of Gee is the only method to evaluate cerebral collateral circulation; however, Bone and coworkers described the use of periorbital Doppler ultrasound during common carotid artery compression as an accurate method of predicting the collateral hemispheric pressure as validated by back-pressure measurements at carotid endarterectomy.[3] Either technique is important in defining the potential collateral around an extracranial carotid artery lesion, a matter of particular importance in patients being observed who have asymptomatic carotid artery disease.

The authors suggest that patients with documented internal carotid artery occlusion should be considered candidates for an extracranial bypass procedure. Although neurosurgical advances have made this operation relatively safe and effective, I am unconvinced that this procedure is necessary for most patients with internal carotid artery occlusion. The natural history of internal carotid artery occlusion is generally favorable.[4] Extracranial-intracranial bypass procedure is reserved for patients in whom recurrent transient ischemic attacks develop after proved internal carotid artery occlusion and only after assuring that microemboli are not emanating via the external carotid artery from a lesion at its origin or the blind stump of the internal carotid artery.

Although the authors have emphasized the important role of sensitive direct carotid artery noninvasive screening in the postoperative period, I find the 15% incidence of reported recurrent stenosis higher than that in my own practice. In a follow-up of 115 cases of carotid endarterectomies over five years, the late incidence of recurrence detected by routine direct carotid artery Doppler examination with sound spectrum analysis was less than 5%. Whether this relatively low incidence is related to intraoperative detection and correction of residual technical defects using Doppler ultrasound or the routine use of antiplatelet agents postoperatively is difficult to determine. Nevertheless, I agree that careful preoperative, intraoperative and postoperative noninvasive evaluations are necessary to identify carotid artery lesions that are usually asymptomatic and unrecognized by patients and physicians alike.

Finally, I would strongly support the authors' approach to the integrated use of noninvasive diagnostic technology with selected use of intravenous versus intraarterial angiography in patients with suspected cerebrovascular disease. Indeed, the advent of digital subtraction angiography has not and should not replace noninvasive diagnostic techniques. To the contrary, this new radiologic technology has made the noninvasive laboratory all the more important in screening patients with symptoms of cerebral ischemia as well as asymptomatic patients or those with atypical, nonlateralizing symptoms. I agree with the authors that patients with symptoms who have noninvasive evidence of significant extracranial carotid artery atherosclerosis may benefit from intravenous digital subtraction angiography. I personally will operate on such patients based on the findings on an intravenous arteriogram when a significant carotid artery lesion is visualized and in agreement with the findings of the noninvasive laboratory. It has been my experience, however, that patients with normal noninvasive studies have rarely shown a lesion on intravenous angiography, but intraarterial angiography may occasionally record an ulcerated plaque amenable to operation. I thus recommend proceeding directly to intraarterial imaging if the noninvasive study shows no abnormalities.

For asymptomatic patients, controversy persists regarding the best form of treatment. I would generally agree with the authors' approach, although a prospective study using noninvasive techniques is under way to define the natural history of detected asymptomatic carotid artery disease in a large multicenter family practice study supported by the National Heart, Lung and Blood Institute. Those studies are only possible with the advent of newer noninvasive diagnostic technology. Such epidemiologic information, coupled with the significant advances reviewed so well by Bandyk and Thiele, will greatly aid physicians in providing cost-effective diagnosis and treatment of patients with cerebrovascular disease.

ROBERT W. BARNES, MD
Professor and Chairman
Department of Surgery
University of Arkansas for Medical Sciences
Little Rock, Arkansas

REFERENCES

1. Barnes RW, Rittgers SE, Putney WW: Real-time Doppler spectrum analysis: Predictive value in defining operable carotid artery disease. Arch Surg 1982 Jan; 117:52-57
2. Rittgers SE, Thornhill BM, Barnes RW: Quantitative analysis of carotid artery Doppler spectral waveforms: Diagnostic value of parameters. Ultrasound Med Biol 1983; 9:255-264
3. Bone GE, Slaymaker EE, Barnes RW: Noninvasive assessment of collateral blood flow of the cerebral hemisphere by Doppler ultrasound. Surg Gynecol Obstet 1977 Dec; 145:873-876
4. Grillo P, Patterson RH Jr: Occlusion of the carotid artery: Prognosis (natural history) and the possibilities of surgical revascularization. Stroke 1975 Jan-Feb; 6:17-20

Improving Psychiatric Care for Elderly Patients

DR GOODWIN'S PRESENTATION elsewhere in this issue, "Common Psychiatric Disorders in Elderly Persons," is comprehensive, timely and informative, not only to psychiatrists but to a broad range of medical specialists. The majority of the elderly who experience age-related emotional disturbances are initially treated by physicians in specialties other than psychiatry—primarily internal medicine, family practice and general practice. Treatment by them, in most situations, suffices and relatively few are referred for psychiatric care. This is appropriate in that elderly patients often have emotional disturbances associated with physical illnesses or senescent decline, and appropriate treatment of an associated illness frequently serves to ameliorate the emotional distress.

Dr Goodwin has very appropriately commented that psychiatry is less disposed to ignore the elderly than it once was. The rapidly increasing numbers of senior citizens among us, and their impact on the health care